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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the Application of:

S. CARL FALCO et al. CASE NO.: BB-1067-B

APPLICATION NO.: 09/377,431 GROUP ART UNIT: 1636

FILED: AUGUST 19, 1999 EXAMINER: D. GUZO

FOR: PLANT METHIONINE SYNTHASE GENE AND METHODS FOR INCREASING THE METHIONINE CONTENT OF THE SEEDS OF PLANTS

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

This is submitted to facilitate prosecution of the above-identified application.

IN THE CLAIMS

Kindly cancel claims 2-13.

Please add the following new claims:

14. (new) An isolated nucleic acid fragment comprising:

(a) a nucleotide sequence encoding a polypeptide having methionine synthase activity, wherein the amino acid sequence of the polypeptide and the amino acid sequence of SEQ ID NO: 2 or 4 have at least 90% sequence identity based on the Clustal alignment method, or

(b) the complement of the nucleotide sequence of (a).

15. (new) The isolated nucleic acid fragment of claim 14, wherein the amino acid sequence of the polypeptide and the amino acid sequence of SEQ ID NO:2 or 4 have at least 95% sequence identity based on the Clustal alignment method.

16. (new) The isolated nucleic acid fragment of claim 14, wherein the polypeptide comprises the amino acid sequence of SEQ ID NO:2 or 4.

17. (new) The isolated nucleic acid fragment of claim 14, wherein the nucleotide sequence comprises the nucleotide sequence of SEQ ID NO:1 or 3.

18. (new) A vector comprising the isolated nucleic acid fragment of claim 14.

19. (new) A recombinant DNA construct comprising the isolated nucleic acid fragment of claim 14 operably linked to at least one regulatory sequence.

20. (new) A method for transforming a cell comprising transforming a cell with the isolated nucleic acid fragment of claim 19.

21. (new) A cell comprising the recombinant DNA construct of claim 19.

22. (new) A method for producing a plant comprising transforming a plant cell with the isolated nucleic acid fragment of claim 14 and regenerating a plant from the transformed plant cell.

23. (new) A plant comprising the recombinant DNA construct of claim 19.

24. (new) A seed comprising the recombinant DNA construct of claim 19.

25. (new) An isolated isolated nucleic acid fragment comprising a first nucleotide sequence, wherein the first nucleotide sequence contains at least 30 nucleotides, and wherein the first nucleotide sequence is comprised by another polynucleotide, wherein the other polynucleotide includes:

(a) a second nucleotide sequence, wherein the second nucleotide sequence encodes a polypeptide having methionine synthase activity, wherein the amino acid sequence of the polypeptide and the amino acid sequence of SEQ ID NO:2 or 4 have at least 90% sequence identity based on the Clustal alignment method, or

(b) the complement of the second nucleotide sequence.

26. (new) An isolated polypeptide having methionine synthase activity, wherein the amino acid sequence of the polypeptide and the amino acid sequence of SEQ ID NO: 2 or 4 have at least 90% identity based on the Clustal alignment method.

27. (new) The polypeptide of Claim 26, wherein the amino acid sequence of the polypeptide and the amino acid sequence of SEQ ID NO:2 or 4 have at least 95% identity based on the Clustal alignment method.

28. (new) The polypeptide of Claim 26, wherein the amino acid sequence of the polypeptide comprises the amino acid sequence of SEQ ID NO:2 or 4.

29. (new) A method for isolating a polypeptide encoded by the isolated nucleic acid fragment of claim 14 comprising isolating the polypeptide from a cell containing a recombinant DNA construct comprising the polynucleotide operably linked to at least one regulatory sequence.

30. (new) A nucleic acid fragment comprising

(a) the recombinant DNA construct of claim 19, and

(b) a second recombinant DNA construct comprising a nucleic acid fragment encoding a plant cystathionine γ-synthaseor a functionally equivalent subfragment thereof or a complement thereof operably linked to at least one regulatory sequence.

31. (new) A method for increasing methionine content of the seeds of plants comprising:

(a) transforming plant cells with the recombinant DNA construct of claim 19;

(b) growing fertile mature plants from the untransformed plant cells obtained from step (a) under conditions suitable to obtain seeds; and

(c) selecting progeny seed of step (b) for those seeds containing increased levels of methionine compared to untransformed seeds.

32. (new) A method for increasing methionine content of the seeds of plants comprising:

(a) transforming plant cells with the nucleic acid fragment of claim 30;

(b) growing fertile mature plants from the untransformed plant cells obtained from step (a) under conditions suitable to obtain seeds; and

(c) selecting progeny seed of step (b) for those seeds containing increased levels of methionine compared to untransformed seeds.

33. (new) A method for producing plant methionine synthase comprising:

(a) transforming microbial host cells with the chimeric gene of Claim 19;

(b) growing the transformed microbial cells obtained from step (a) under conditions that result in expression of the methionine synthase protein.

REMARKS

Claims 2-13 have been cancelled, and claims 14-35 have been added. This case is a continuation application under 37 CFR §1.53(b). The present application is a continuation of Application No. 09/377,431 filed on August 19, 1999 which is a continuation-in-part of Application No. 08/703,829 file August 27, 1996 (now abandoned) which claimed priority of provisional application number 60/002,973 filed August 30, 1995.

Support for new claims 14-35 can be found in the specification and claims as originally filed. Thus, now new matter has been added.

Enclosed herewith along with this Preliminary Amendment is an Information Disclosure Statement setting forth all references which had been cited by Applicants or the Examiner in connection with Serial No. 09/377,431 .

Please charge any fees which are required in connection with the filing of this Preliminary Amendment, Information Disclosure Statement and Petition for Extension of Time to Deposit Account No. 04-1928 (E. I. du Pont de Nemours and Company).

Respectfully submitted,

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Enclosure